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AVAILABLE ON: COMP-U-SERVE ~ DELPHI ~ GENIE ~ THE SOURCE

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From the Editor's Desk:

Now that many of us are counting the days 'till Christmas I wonder how many dealers will be overjoyed at being able to fill their orders and "backorders" in time for Christmas. It is a sobering thought to look at the SIZE of the USA, and find that the company which makes our computer places more machines in "EUROPA" than here for the holidays. Often I find myself wondering why. There is either sheer genius or quite the opposite behind this "marketing scheme", hopefully, one day we will understand just what the reasoning is. The way we see it, Atari had better pull out all the stops and make SURE there are PLENTY of machines available in the USA for Christmas 1988....The BELLS are ringing and they ain't Jingle Bells! Amiga is, at this time rolling over the ST Atari like a steam roller on hot tar. The conversion rate is quite high and the "new user" numbers are

simply numbing.

On another more humorous note, a rather young and impetuous "spokesman" for Atari has stated publicly that Atari is not, by it's lackluster performance and meager sales in the USA, partly responsible for the SOFTWARE THEFT RATE (%) in the USA. How utterly incredible! After it has been stated time and time again that the number of machines in use, ie; USERS, is directly proportional to the % of software theft and the damage it does to the Developers of same. For Example John, Why is it many of the developers for the ST are moving to IBM, MAC or Amiga? Numbers, sheer numbers mandate these moves! Atari admits to 225,000 STs in use in the USA...how many IBMs, MACs or Amigas?

Comes now, Mr. Software Developer with a new program for release. Which market, John, do you think he would stand to EARN MORE DOLLARS in at initial release and which market would have more of a release impact? Atari? NEVER! (Not unless they placed three times the amount of machines in use in the USA overnight!)...Software theft is a great deal more pronounced in the other computer marketplaces but, because there are so few ST machines in the US market in comparison, each stolen copy hurts! Can you now understand why it is so important that Atari GET MOVING on increasing the number of machines in use. Before there are no USA developers left. How many "European" developers were at Comdex? hnnnnnnnn

We see ads on TV for Apple, Commodore, MacIntosh and most of the clone computers and EVEN the "toy computers"WHAT do we see for Atari??? The perpetuation of the 2600 PACMAN game machine image. I still say Atari is suffering from a severe case of the CHEAPS! Come on Sunnyvale, this is the "END" of 1989, remember your promises at the end of 1988?? This year sounds like an instant replay. EVEN COMDEX. IT IS TIME ATARI GOT SHED OF THE "MINOR LEAGUE" THINKING and played the game like a major. I hate to think this, but if they do not make a wholesome effort at making ST SALES this Christmas Time a BIG success they may not have another chance at it. The majority of the people are disgusted with Atari and it's EMPTY promises and YAMS (Yet Another Machine).

For cripe's sake, get competitive and PROMOTE THE ST... please?

"Ah still got mah sox!"

Ralph.....

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PAGESTREAM, SWEET DREAM or NIGHTMARE?

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by R.F.Mariano

"A highly ambitious programming effort".....I hear this everytime I open the box and smugly admire this program. There is not a time that when I boot PageStream that there is not another pleasant surprise for me in finding marvelous "little" features that simply are NOT present in any other DTP package available in the ST marketplace.

The power available to the user via PageStream is just short of awesome, accordingly, the user must be cautioned that with power comes responsibility. This program will attempt to follow every command you ask of it. This is why, (in my opinion), there are some reports of the program stopping cold in it's tracks. Look at it this way, if you were a Top Sarge and told a 'cruit to march to the left and do forty pushups at the same time, there are bound to be problems. Therefore please read the docs thoroughly and use them as you move along in any project.

When using PageStream, I prefer using my monochrome monitor. I did however, produce two newsletters using the medium rez monitor and although there is a difference, (naturally), the results were equally superb.

For even the neophyte, PageStream and it's documentation are put together to be understood and utilized. The tutorials are excellent and should take the newcomer along rather nicely. PageStream has all the earmarks to become a fantastic Desk Top Publishing program for the ST. This program is definately worthwhile in many ways, the company's support is nothing short of superb and these are young men with a strong desire to

succeed and have the skill and ability as PageStream easily reflects.

For more information about PageStream, check the message strings on the major online services ATARIVEN (CIS) SOFTLOGIK (GENIE) or...

call:

Soft-Logic Publishing Corporation
P.O. Box 290071
St. Louis, MO. 63129
* 314 - 894 - 0431 *

The Versatile Atari ST Computer
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by Myles S. Goddard

I'm sure that you are familiar with the phrase " Power without the Price ", but let's think a little further along those lines. I have had the Magic Sac for some months now and I have learned much about the operating system of the Macintosh. It isn't as easy to grasp as the friendly GEM interface of the ST but it does have a lot of nice features that aren't found on the ST or IBM environment. As a matter of fact, I was even thinking about buying a MAC system, that is, until I saw what the 1040ST can do in emulation.

For those folks who like to dabble into other computer systems but don't want to spend thousands in new hardware, then the Magic Sac is the way to go. It will emulate a Macintosh 512KE with precision, although for many, many applications it will do a beautiful job with just about any program that requires the 64K ROMS in the older Macs.

To be quite honest, my first experience with the Magic Sac was with the cracked disk based version, 5.9. Although I knew there were some limitations by having the Mac OS in RAM, I did manage to see some of the neat programs for the Mac World. By using the "Bootleg" copy, I was thoroughly impressed enough to buy the Magic Sac cartridge. The docs for the Magic Sac are very well presented and even gives a short history of the Macintosh and its operation. Perhaps it is my imagination, but the cart seems to be more stable than the disk version and besides allows almost 200+K for more RAM for some of the larger Mac programs. I tested out some of the powerhouse applications like Excel, which by the way, is supposed to be THE BEST spreadsheet anywhere for ANY computer, although I'm sure 1-2-3 users will balk at that statement. I particularly like MacWrite myself as it is super user friendly and does the job for me. Anyway, to get back to my train of thought, I am sure that there are those who want to extend their computer horizons beyond just " playing around " and get to some serious Mac usage. Don't get me wrong, the Magic Sac is a super product and with the newest version 6.1 software, the disk access and screen output are phenomenal over the previous versions and still outperforms the speed of a Mac 512 and has a bigger screen to boot! A monochrome monitor is highly recommended and if you know what you are

doing you can enlarge the screen by simply adjusting from inside the cover of the SM124.

The Spectre 128 is the next step in ST Mac emulation and uses the newer 128K ROMs found in the newer Macintosh's. From what I've seen, the screen display is outstanding with the screen refreshing itself with lightning speed. Now you ask yourself, " Why should I go any higher than the Magic Sac? ". Good question, here's my answer. The newer Mac systems have a little application called HYPERCARD which is a giant step in making programming a sinch. The Spectre 128 allows Hypercard to run as well as HyperDA and a wealth of new software that is designed to run on the new Macs. At present, sound is not fully supported but will be in the near future. There is a bit of compatibility problem with regards to graphic games and such. I believe the reason for this is the original Mac programs use extensive calls to screen graphics buffers, which of course the 128 doesn't yet support. But think of it this way, if you want great graphics then you can use the ST's power to blow your socks off. The Macintosh is good but it's only a monochrome display. By having the ST, you can have the best of both worlds. But wait, there is another way to get a "Macintosh". Read on.....

I sent off for some information about a reconditioned Macintosh and got my reply today. The name of the company is SUN Remarketing, Inc. They are located at P.O. Box 4059, Logan, Utah 84321. They specialize in the reconditioning of out of production units. The ad that caught my eye was for a Apple Lisa, a computer that preceded the Macintosh and cost just slightly under \$10,000 when new. It had a megabyte of RAM, a 400K floppy drive and a 5 meg hard drive. It was in a world of its own and obviously stayed there. It wasn't a product that went over big so it was withdrawn and was replaced with the Macintosh. Anyway, they have a Lisa setup that will get you up and running Mac software. Its called MacWorks and does enable the Lisa to emulate the Mac, however the ad states that it isn't completely compatable with some of the newer programs but if you buy the newer Mac Works Plus for \$200 it will let you run more of them.

What's this? The circles on the screen are ellipses, now what? Yep, buy the Screen Modification Kit for \$79. Whew, now I would like the System files to be over 400K....Oh no! Right again, lets upgrade the 400K drive to an 800K drive, another \$200. Great, now let's add this together and see what we come up with.

Lisa Professional	\$	995.00
800K Floppy Upgrade	\$	200.00
Screen Mod Kit	\$	79.00
Mac Works Plus	\$	200.00

		\$	1474.00

That's \$ 1474.00 for a 1 meg machine with 5 meg hard drive. If you want to get a 20 megabyte hard drive after you have purchased the outfit it will cost you an additional \$ 1095.00. Ok, we have purchased a Lisa computer system for a total of \$ 2569.00, and it still won't emulate the sound of a macintosh. And remember, this is a RECONDITIONED unit.

Yep, now this is where the ST really shines.

Buy a 1040ST monochrome system for about \$ 800.00, add Spectre 128, about \$ 179.00, some 128K Mac ROMs, \$ 99.00, 20 Meg ABCO Hard drive, \$ 519.00. Total cost- \$ 1597.00. This is for a NEW system and some of the best software in the world will run on both systems. Now for some frosting on the cake... PC-Ditto, about \$ 59.00 (Mail Order). What do we

have now.....?

Here's what we have. ONE machine that will run ST, IBM and Macintosh software. That's right, you can run Excel if you like, Lotus 123, or VIP. In fact, not only do you get hundreds of great software choices, you get THOUSANDS. The ST system has some of the best graphics capabilities around and when coupled with the RGB color monitor you have a setup that can't be beat, unless you want to put off buying that car for a MAC II.

Now I know where that catchy phrase came from.....

"Power Without The Price"

" ATARI COMPUTERS "

Myles S. Goddard

XL/XE ST Xformer Support
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ST Xformer BBS Support

by Darek Mihocka 11/15/88

For the last 4 months, ST Xformer II (versions 2.0 thru 2.3) has been available for download on Compuserve, Delphi, and Genie. This has proved to be an effective distribution method, allowing me to put up new versions once a month, and also provide online support to Xformer users. This online support benefits the users, and has also benefited me, allowing me to hear of bugs and suggestions. I compared my latest development version of Xformer 2.4 to the version 2.1 which is up on the online services, and can see quite an improvement in compatibility. Several major titles, including some popular video games, which do not run under 2.1 do run under 2.4, and I still plan to spend about a month on 2.4 before releasing it.

As nice as this may seem, this online support costs me and you money. My monthly bill for Compuserve, Genie, and Delphi is about \$250, which is barely offset by the registration fees of those users who have been honest enough to send in the \$20. And from the user's point of view, paying \$10/hour or more to use these services becomes prohibitive if you try to download every Xformer update and the megabytes of 8-bit software that I have uploaded for use with Xformer, not to mention the many more megabytes of 8-bit software regularly available. Although Genie is cheap at \$5/hr, I have to call it long distance and only get 1200 baud access, and although Compuserve and Delphi have local numbers, their 2400 baud file transfer speed is much slower.

Since September I have been planning to set up Xformer BBSs, which would

provide a cheaper method of support, both for me and the users. After getting nothing but bombs from STadel 3 BBS software, and after not getting some badly needed phone support from QMI for the BBS I half finished in ST Talk Pro, I started looking around for existing BBSs which could give me space for Xformer support. I have several BBSs ready to provide the support, but for now, I'm only going to give out one number, and see how things go.

The L.U.ST BBS in London, Ontario is a 300/1200/2400 baud 24 hour BBS which is giving me 20 meg of space for Xformer files. I already have over 30 meg of p/d 8-bit software, so there will be no lack of Xformer-ready .SD and .DD files. It is in the heart of southern Ontario, so it is a cheap long-distance call from anywhere in the Great Lakes states, like Michigan, Ohio, Pennsylvania, and New York State. At 2400 baud, an ARCD .SD file only takes about 5 minutes to download, which is quicker and cheaper than calling Genie at 1200 baud.

By the way, L.U.ST (London Users of STs) produces one of the highest quality newsletters around. If you belong to a user group, consider exchanging newsletters with L.U.ST.

This BBS will start the Xformer support this weekend (Nov. 19). Since it is in my area, I will call frequently to provide support. Registered users of Xformer will also have access to other downloads, such as Xformer 2.4 and later, version 2.5 (the 130XE emulator). Xformer 2.4 will NOT be uploaded to the pay services but will be available to new registered users and as a free update to current registered users.

Of course I am not dropping support of the pay services, just limiting it slightly. If you do subscribe to Compuserve, all the latest available Xformer related files can be found in the ST XFORMER download library in the Atari ST Productivity SIG. To enter it, type "GO ATARIPRO". If you subscribe to Genie, type "M 476" to enter the Atari ST download section, select category 14 (Product Support) and do a file list back until about July. Look for files uploaded by me (DAREKM). On Delphi, enter the ST Log databases, and scan through the Recent Arrivals section for the latest files, and the other sections for older files. Type "SEA XFORMER" to do the search. I did at first provide support on BIX, but stopped after I calculated my billing rate to be about \$30 or \$40/hr.

If you are a registered user who has contributed \$20 or more in shareware fees, you can get the latest Xformer files from me by either calling the L.U.ST BBS or simply mailing in your Xformer disk and I will mail it back to you with the new files. The current latest files are: ST Xformer version 2.21 and 2.31, FXP 1.1, QTU 1.1, and there is a new boot disk effective Nov. 6th. Version 2.21 should only be used for the Apple and C64 emulation, since version 2.31 has some nice improvements:

- smaller size, uses less memory
- faster text and graphics scrolling
- marginal overall speed increase (trust me, you won't notice it)
- support for 1200XL function keys and the Help key
- faster 800XL ROM/RAM swapping
- elimination of virtual joysticks 3 and 4 to match XL/XE design
- now runs the G.O.E. demo and some more versions of SpartaDOS
- more accurate serial port emulation (requires the disk drive cable) which allows you to connect any self-powered 8-bit peripheral, e.g. the 850 interface and the various Atari printers and plotters.

ST Xformer source code is available on the pay services and on the BBS, and is described fully in the latest ST LOG #26. It is helpful to check

ST LOG #17 and #18 as well, since they contain my first docs of the original Xformer 1.1 source code.

L.U.ST BBS - (519)-432-5144 300/1200/2400 baud 24hrs.
U.S. BBSs coming soon.

Compuserve - ST XFORMER library in ATARIPRO	I am 73657,2714
Delphi - ST databases in the ST Log SIG	I am DAREKM
Genie - ST download library 14	I am DAREKM

Xformer support (voice): (519)-747-0386, 24hrs, me or a machine.

I now have a permanent answering machine set up, so if anyone has any questions or things they'd like to talk about, give me a call, and if I'm not home, leave a message and I'll most like phone you back within a day. Leave your name, area code and phone number, city or time zone, and a convenient time when you can be reached. If you have questions, leave them on the tape too so that I can answer them when I phone you back. The number is listed above, and I can usually be reached in the late afternoon (eastern time), or around midnight.

I will NOT answer questions regarding pirated software or release dates of Xformer 2.4, 2.5, or 3.0. Announcements will be made on the support BBSs and online services when they are available. I trust that if you are using "cracked" files of disks and cartridges that you do own the originals. If you have an 8-bit disk drive and are using it with Xformer, there is no need to crack most software. The serial cable to connect the 8-bit drive to the ST is available from me for \$23 US.

Hope to see everyone calling the BBS this weekend. Leave a message to the sysop and let him know you are an Xformer user. If you don't yet have the Xformer files, you will be able to download them, but not all the files that the registered users have access to. When you register you will receive the printed manual and latest software on an 800K disk. Add \$2 if you'd rather have 2 400K disks, i.e. you only have a single sided disk drive. Having at least a megabyte of memory is almost a must. The 8-bit disk drive cable is only available to people who register.

Xformer is quickly reaching the level of Atari XL/XE support that emulators like the Magic Sac and PC Ditto provide of their respective machines, but like those other emulators, it has taken a lot of time and effort. Since this program is shareware, my income from it relies solely on the shareware registrations of users. At \$20, it's cheap, and you will get the free updates and support through 1988 and 1989. Some time in 1989 I expect the program to be at an advanced enough stage to not require any more updates. But don't wait until then to enjoy it!

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Darek Mihocka
Box 2624, Station B
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CANADA

DISCOVERY CART DELIVERS!
=====

ANSWERS TO QUESTIONS

QUESTION - Does the Discovery Cartridge allow my ST to run IBM PC programs?

ANSWER - No, but the DISCOVERY CARTRIDGE can help you do this. There are products on the market that can permit your ST to run some IBM PC programs.

Without any additional hardware, your ST computer can directly read and write some disks from the IBM PC. All IBM PC floppy disks are written using the MFM coding scheme. Your Atari ST can operate on those disks that are written at the 250K "double density" data rate. You may want to add a 5.25 inch drive mechanism to your ST. The DISCOVERY CARTRIDGE can ease the problem of connecting a standard (non Atari) drive mechanism. See that section below.

A special "high density" 5.25 and/or 3.5 inch drive mechanism can be added to your ST to access "high density" IBM PC disks which use data rates up to 500K. The DISCOVERY CARTRIDGE could be used to access these "high density" drives while your standard ST cannot. The ability to access "high density" drives with the DISCOVERY CARTRIDGE will not be included in our first software release.

QUESTION - Can the DISCOVERY CARTRIDGE ease the problem of connecting a standard 5.25 inch drive mechanism to my ST?

ANSWER - Yes, but read on. As part of our "USER CONFIGURABLEOPTIONS" a 3rd and 4th drive can be connected to your ST. In this circuitry for the third and fourth drives, the disk drive signals are buffered to be compatible with a standard IBM PC type drive. Also, our software package allows handling drives with step rates slower than 6 milliseconds.

However, unless you are a technician familiar with disk drive interfacing, you are better off purchasing a drive already set up to be compatible with your ST. Even though it costs more, there will be fewer problems in the long run. Your dealer may be able to help you utilize the DISCOVERY CARTRIDGE's drive interface in connecting a standard disk drive. The only assistance HAPPY COMPUTERS can provide is through the documentation that comes with the DISCOVERY CARTRIDGE. We will not approve or deny approval of any particular after-market disk drive product for use with our DISCOVERY CARTRIDGE.

QUESTION - Since my hard disk is already drive C and D, and my RAM DISK is drive E, what drive letters can be used for the 3rd and 4th drive option?

ANSWER - Our software includes an installer program that lets you decide which drive letters are to correspond to the 3rd and 4th drive. Any currently unused letter in the range C-P may be used.

QUESTION - Will all programs on my ST be able to use the 3rd and 4th drives connected to that option on the DISCOVERY CARTRIDGE?

ANSWER - No, only software that calls the standard disk drive I/O software in the ST computer's BIOS will work. Also, our software driver must be installed to allow programs to access these extra drives. This allows having up to four drives connected and accessed at one time. The installation of our software driver is similar to that required for a RAM DISK.

Software programs that directly access the disk drive hardware through the hardware registers in the ST will not be able to access the 3rd and 4th drive option. Our DISCOVERY CARTRIDGE adds new hardware registers that permit the 3rd and 4th drive selection. These registers are not a part of the standard ST hardware description, but are documented in the DISCOVERY CARTRIDGE's manual. A special case of a program that does not function with the 3rd and 4th drive option is the disk format utility built into the ST's desk top software. The format program will not allow you to format any drive letter higher than drive B. There are various solutions around this problem.

Even though a particular program may not work with the 3rd and 4th drive option, this option may still be of use. Suppose you had a 5.25 inch drive connected as the third drive. By flipping the "DRIVE 3 SWAP" switch on the DISCOVERY CARTRIDGE (optional), this 5.25 inch drive would then become drive A or B, which should then work with more programs. The limiting factor in this case would be that the 3rd drive connected must be capable of the 6 millisecond stepping rate, since our software which allows the slower stepping rate would not be active.

QUESTION - Does the DISCOVERY CARTRIDGE make my ST COMPUTER read and write disks faster?

ANSWER - No. Unlike the 8 bit Atari COMPUTER, the ST COMPUTER's disk hardware is a full parallel interface. No hardware speed improvement device is needed. Software improvements such as RAMDISKS, track buffering and format interleave are available on the market.

QUESTION - What are the physical characteristics of the DISCOVERY CARTRIDGE?

ANSWER - With the DISCOVERY CARTRIDGE plugged into your ST or MEGA COMPUTER, the cartridge enclosure extends about 4.5 inches to the left of the computer housing. This allows room for 3 disk drive connectors on the back of the DISCOVERY CARTRIDGE, and also provides clearance for MIDI cables, as some ST computers have the MIDI connections next to the cartridge port. The DISCOVERY CARTRIDGE's enclosure extends about 2 inches forward from the front edge of the cartridge electrical socket. Since the DISCOVERY CARTRIDGE already extends quite far (4.5 inches) to the left, HAPPY COMPUTERS decided to put the optional 2nd cartridge expansion socket on the DISCOVERY CARTRIDGE facing toward the front of the computer. The drive 3 swap and ROM bank select switches also face toward the front.

QUESTION - Do disk copies made by the DISCOVERY CARTRIDGE require that

the CARTRIDGE be installed to run the copy, like some copies made by the 8 bit HAPPY?

ANSWER - No, The DISCOVERY CARTRIDGE does not have to be present to run the copies. Refer to the section in our original literature which compares the DISCOVERY CARTRIDGE to the 8 bit HAPPY for further information.

QUESTION - Are software upgrades required? ANSWER - Like all other computer programs, improvement is always possible. Please do not expect our first software release to contain every possible feature. The DISCOVERY CARTRIDGE hardware device contains no software on ROM or EPROM, so no hardware upgrade should ever be needed or required. All improvements will be by virtue of disk based software. From time to time, we will offer new software upgrades which will include new features and further use of the power of the DISCOVERY CARTRIDGE's hardware. Software upgrades are not free. We notify our customers when they are available, and how to order them. The charge is usually nominal.

QUESTION - Does the DISCOVERY CARTRIDGE and all of its features work with all drives and all ST computers?

ANSWER - We have designed the DISCOVERY CARTRIDGE to work with all standard 520ST, 1040ST and MEGA series computers made by Atari to date. Computers that have special modifications that affect the processor speed, performance, interrupt system, or disk drive interface may not operate with the DISCOVERY CARTRIDGE.

The DISCOVERY CARTRIDGE works perfectly with the internal drive in those computers that have them. No internal wiring or modification is needed, as all signals needed are present on the disk drive connector at the back of the computer. The DISCOVERY CARTRIDGE always plugs into this connector with a cable that is included, even if there are no external drives.

Our information indicates that Atari has shipped a variety of drives, with various internal differences. A particular drive may work perfectly in all respects with the DISCOVERY CARTRIDGE. Then again, even though a drive may seem to function properly for all normal DOS and file operations, it may have some problems performing some of the extended functions that the DISCOVERY CARTRIDGE provides. For example, some drives may not be able to position the read/write head past the 80th track; and this may be required to copy a particular disk. It is conceivable that a particular drive may have trouble reading or writing in the MACINTOSH format. The MACINTOSH format uses a data bandwidth on the outer tracks that is higher than normal MFM 250K.

The DISCOVERY CARTRIDGE has no control over the quality of disk reading and writing, head positioning, or other restrictions that a particular drive mechanism may cause. To assist the user, our software package includes diagnostics that will test a disk drive, and measure its performance in these respects. Our test should allow the user to determine if a particular drive functions well enough to do the job required. If there are problems, the user may need to substitute a different drive. It may be possible to substitute a better drive

mechanism that plugs right in, taking the place of the one originally provided by Atari. Your computer dealer may be able to help you in doing this. Our diagnostic cannot determine if a drive is out of alignment. Only a qualified technician can test and adjust all aspects of your disk drive.

QUESTION - Does the DISCOVERY CARTRIDGE allow my Atari ST computer to run programs from the MACINTOSH computer?

ANSWER - No, but the DISCOVERY CARTRIDGE can help you do this by adding the ability to translate disks from MACINTOSH format to the MAGIC format used by the MAGIC SAC, without the need to have a MACINTOSH computer connected to your ST computer. There are products on the market that can permit your ST to run some MACINTOSH programs. One of these is the MAGIC SAC from DATA PACIFIC.

The MAGIC SAC product is a combination of hardware and software. The hardware portion of the MAGIC SAC is a CARTRIDGE that holds the MACINTOSH ROMS and a battery backed up clock circuit. Our DISCOVERY CARTRIDGE has the option to operate with the MAGIC SAC software, either by installing the ROMS and clock circuit in the space provided on the DISCOVERY CARTRIDGE board, or by plugging the MAGIC SAC cartridge into the optional cartridge jack on the DISCOVERY CARTRIDGE. See the section on FACTORY and USER CONFIGURABLE options in this literature for further information.

HAPPY COMPUTERS does not offer any opinion or information concerning the ability of the MAGIC SAC to run MACINTOSH programs. For the purpose of this discussion, we assume that the MAGIC SAC does this function. HAPPY COMPUTERS does not offer any warranty concerning the performance of products made by other companies.

IMPORTANT: The option to install ROMS or EPROMS such as MACINTOSH ROMS directly on the DISCOVERY CARTRIDGE, to facilitate running the MAGIC SAC software without the need to plug in the MAGIC SAC hardware, is a new option. It was not described in our previous literature.

QUESTION - How does the DISCOVERY CARTRIDGE compare with the TRANSLATOR from Data Pacific?

ANSWER - Compared to the DISCOVERY CARTRIDGE, the TRANSLATOR is a bad design.

TRANSLATOR vs DISCOVERY CARTRIDGE =====

Without a hardware upgrade, your ST computer cannot read or write the variable speed GCR data on MACINTOSH formatted disks. Your ST can only read and write MFM data at the 250K rate. The TRANSLATOR was designed specifically to allow your ST to read and write MACINTOSH disks. That is the only thing the TRANSLATOR can do. The DISCOVERY CARTRIDGE, which was designed to read and write virtually any disk format, can read and write MACINTOSH disks as just one of its full range of features.

Both the DISCOVERY CARTRIDGE and the TRANSLATOR plug in-line with the disk drive cables, allowing both of them to access any internal and external

floppy drives that are accessible by your ST computer.

The data pathway between the TRANSLATOR and the ST COMPUTER is through the midi port. The DISCOVERY CARTRIDGE plugs into the ST computer's cartridge port. The DISCOVERY CARTRIDGE can move large amounts of disk data and programs through its cartridge port connection at the top speed of the 68000 microprocessor in your ST. Unlike the midi interface, the cartridge port does not suffer from a data bottleneck of serial to parallel conversion. The TRANSLATOR transfers disk data at the midi port speed which is (painfully) much slower. Use of the midi port as the transfer interface causes some disk operations with the TRANSLATOR to take almost 15 minutes. The DISCOVERY CARTRIDGE, with its full parallel cartridge interface can do the same job in about 3 minutes. Using the slow midi ports to transfer disk data with the TRANSLATOR is a bad design.

The TRANSLATOR requires its own power supply. Since the DISCOVERY CARTRIDGE's modern design uses small amounts of electricity, no separate power supply is needed.

The software that supports the TRANSLATOR is an integral part of the MAGIC SAC software. This allows ST computers equipped with both the TRANSLATOR and MAGIC SAC to directly run MACINTOSH programs from MACINTOSH formatted disks. It may even be possible to directly run some purchased MACINTOSH programs that are copy protected. Only those copy protected programs that do not try to access MACINTOSH hardware registers will function. There may be other reasons why you can't execute a particular copy protected MACINTOSH program with the TRANSLATOR. Neither the TRANSLATOR nor the DISCOVERY CARTRIDGE can precisely duplicate the timing and hardware environment of the MACINTOSH disk system.

The software that supports the DISCOVERY CARTRIDGE could also be an integral part of the MAGIC SAC software. It would be easiest to accomplish this if HAPPY COMPUTERS and DATA PACIFIC reached an appropriate agreement. This hasn't happened yet. As of this writing, the DISCOVERY CARTRIDGE cannot be used directly with MACINTOSH FORMATTED disks while the MAGIC SAC is running a MACINTOSH program.

Although the TRANSLATOR can allow your MAGIC SAC equipped ST to directly operate with MACINTOSH formatted disks, it is extremely slow in doing this. The user will have much faster operation if the MACINTOSH disk is first converted into the MAGIC FORMAT. A MAGIC FORMAT disk can be directly read by your ST COMPUTER's drive, with no TRANSLATOR or DISCOVERY CARTRIDGE connected. The floppy disk controller in your standard ST is very efficient at reading and writing MAGIC FORMAT disks since they are in the MFM format which a standard ST directly handles.

Both the DISCOVERY CARTRIDGE and the TRANSLATOR can be used to convert MACINTOSH formatted disks to and from the more efficient MAGIC FORMAT. The DISCOVERY CARTRIDGE is much faster than the TRANSLATOR at doing this. The slow speed of the TRANSLATOR may really bog you down. Computers were not invented to keep people waiting!

Since the DISCOVERY CARTRIDGE is only needed to do format conversion, and since this is the most efficient way of using the MAGIC SAC, it is not important to have the DISCOVERY CARTRIDGE operate online within the MAGIC SAC software.

DATA PACIFIC's literature that documents the problems with their TRANSLATOR attests to a problem formatting disks in MACINTOSH format

using the TRANSLATOR. They claim that this is due to an RPM problem in some Atari drives. This requires that the disk be formatted on a MACINTOSH, even if you want to write data with your ST, or else a MACINTOSH may not be able to read the disk. The DISCOVERY CARTRIDGE can compensate for both large and small speed variations in your Atari drive, and does not require formatting on the MACINTOSH. The lack of compensation for drive speed in the TRANSLATOR is a bad design.

The bottom line is that the DISCOVERY CARTRIDGE does much more than the TRANSLATOR, converts disks to and from MACINTOSH format more accurately and faster than the TRANSLATOR, and the DISCOVERY CARTRIDGE costs less than the TRANSLATOR.

QUESTION - Will the Discovery Cartridge convert MACINTOSH formatted disk files into Atari files? ANSWER - It could, but our first software release will not contain this feature. Instead, you could convert a MACINTOSH formatted disk into the MAGIC format, and then use the MAGIC SAC to convert this into an Atari file. The same holds true for the opposite direction.

QUESTION - Can I purchase the DISCOVERY CARTRIDGE together with the MAGIC SAC?

ANSWER - No, not at the present time from HAPPY COMPUTERS. However, you can purchase an option with your DISCOVERY CARTRIDGE that allows plugging in the MACINTOSH ROMs and includes a battery backed up clock. This may permit the MAGIC SAC software to operate without the need to plug in the MAGIC SAC cartridge. HAPPY COMPUTERS cannot supply the MACINTOSH ROMs at this time. Your dealer may be able to put together the best package that meets your needs.

MORE OPTIONS

=====

Our original literature describes the features available as USER CONFIGURABLE OPTIONS to the standard DISCOVERY CARTRIDGE. In addition, there is one additional feature available. There are positions to mount two 28 pin EPROMs or ROMs. Usually these will be 27C256, 27C512, or MACINTOSH ROMs. If you place MACINTOSH ROMs in these sockets, and also install the optional battery backed up clock, you should be able to use the MAGIC SAC software, without the need to plug in the MAGIC SAC hardware cartridge. We have tested this. However, we cannot guarantee the performance or compatibility of another company's product.

There is also a position for one additional switch. With 512K EPROMs, this switch selects one of two banks for access by your ST computer. This would allow two 256K programs to be resident inside the cartridge, and permit access to one or the other according to the position of the switch.

FACTORY INSTALLED OPTIONS

We will offer factory installation of options on new DISCOVERY CARTRIDGES before shipment. Once a unit is shipped, option installation will not be available at the prices shown here. Our first option package includes the option for the third and fourth drive, including the switch to select the third drive into the drive A position. Note: with computers that have an internal drive A, this switch selects the third drive into the drive B position rather than the drive A position. It is possible to rewire the internal drive to be drive B, and this would allow

the 3rd drive to be switched to drive A. HAPPY COMPUTERS cannot provide details on this.

Also included are the 28 pin sockets for ROM or EPROM. Note that the ROM / EPROM sockets are empty. HAPPY COMPUTERS does not supply the ROMS / EPROMS that the user may wish to plug in. All of the software needed to operate the DISCOVERY CARTRIDGE is disk based.

The battery backed up clock is also included. We have noticed that some of the other battery backed up clock options for the ST suffer from poor accuracy. Our circuit has been designed to allow us to trim each unit to reasonable accuracy.

The only options possible that are not included in our first options package are the optional jack for a second cartridge, and the switch that would allow selecting the high and low banks of a 512K EPROM.

The switch that allows the user to select the low or high banks of 512K EPROMS may be added on to the first option package. If 512K EPROMs are used, this switch is required, or else only 256K would be addressable.

If 256K EPROMs or MACINTOSH ROMS are used, the switch could be used. If the switch is not installed, a wire jumper must be installed in its place. This wire is required to determine whether pin 1 of the ROMs / EPROMs is high or low. MACINTOSH ROMS (from Apple) require that pin 1 be set low, while 256K EPROMs may require that pin 1 be set high. A wire may be soldered in, or it may be pushed into the socket pins when the ROMs / EPROMs are plugged in. As long as it makes good firm contact, it doesn't matter whether the wire is soldered in or pushed into the socket.

CARTRIDGE JACK OPTION

There is a position on the DISCOVERY CARTRIDGE board for mounting a 40 pin female jack for plugging in a 2nd cartridge. Due to the already wide area that the DISCOVERY CARTRIDGE occupies (4.5 inches to the left of the computer), HAPPY COMPUTERS determined that desk space would be best utilized if the jack for the 2nd cartridge faced forward. With the DISCOVERY CARTRIDGE, a second cartridge will plug in from the front. This precludes the use of some L shaped cartridges as a 2nd cartridge with the DISCOVERY CARTRIDGE.

HAPPY COMPUTERS cannot guarantee any cartridge for use as a 2nd cartridge. With no changes other than the installation of the 2nd jack, we have determined that the MAGIC SAC and the DESK CART seem to work properly when used as a second CARTRIDGE with the DISCOVERY CARTRIDGE, but we cannot guarantee that this applies to all existing and future MAGIC SAC and DESK CART cartridges.

If the 2nd cartridge jack is used with a MAGIC SAC or a DESK CART, the options on the DISCOVERY CARTRIDGE board for the battery backed up clock, and EPROMS / ROMS cannot be used, as they would interfere with the ROMS and clock on the MAGIC SAC and DESK CART. The DISCOVERY CARTRIDGE's option for the third and fourth drive may still be used with a MAGIC SAC or DESK CART plugged in as a second cartridge.

The jack used to implement the 2nd cartridge may not always be available to HAPPY COMPUTERS. We reserve the right to cancel orders for the second cartridge jack option if the jack is not available.

The second cartridge jack may be ordered by itself or in conjunction with the option for the third and fourth drive. It cannot be ordered with the ROM sockets or battery backed up clock option.

There are a limited number of address and select signals at the ST CARTRIDGE jack. With some modification, it may be possible to adapt the DISCOVERY CARTRIDGE to be used as a 2nd cartridge, or to allow various other cartridges to be used as a 2nd cartridge. The DISCOVERY CARTRIDGE board has been designed to simplify this type of modification. Other than the documentation that comes with the DISCOVERY CARTRIDGE, HAPPY COMPUTERS cannot provide assistance concerning this type of modification.

NON-FACTORY INSTALLED OPTIONS

Any of the options allowed by the DISCOVERY CARTRIDGE's design may be installed by a qualified technician. Soldering is required. No wiring is needed in most cases, except for the ROM / EPROM pin 1 jumper as was discussed above. The components are simply soldered into the holes provided on the DISCOVERY CARTRIDGE board. Most of the components are readily available from electronics components suppliers.

Complete schematics, parts lists, and component placement diagrams of the DISCOVERY CARTRIDGE board and options are included with the DISCOVERY CARTRIDGE documentation. No documentation is available concerning HAPPY COMPUTERS' custom HART chip in the DISCOVERY CARTRIDGE.

IMPORTANT - HAPPY COMPUTERS warranty on the DISCOVERY CARTRIDGE is rendered null and void by any modification made to the DISCOVERY CARTRIDGE once it leaves our factory. All options that are installed by HAPPY COMPUTERS will be covered by HAPPY COMPUTERS' warranty. You void your entire warranty if options are installed by anyone other than HAPPY COMPUTERS.

ORDERS AND OPTIONS SHIPMENT

Call (408) 778-5984 for up to date delivery information or,
(408) 779-3830 to order your Discovery Cartridge today.

Ed. Note: Happy Computers is shipping Discovery Carts now and they are in full production.

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This issue of ST PRO GEM (#14) continues the discussion of user interface design which began in episode eight. It begins where we left off, with a further treatment of the mode problem, and proceeds into topics such as visual grammar and layered interfaces.

Note that there is no download for this column. The downloads will return with the next issue, a discussion of using the GEM DOS file system within a GEM application. Specifically, it will include sample code for using the file selector, the GEM form_error alerts, and some utilities for manipulating file and path names. There will also be a feedback section. The following two columns will be devoted to "graphics potpourri", a collection of small but useful GEM utilities such as popup menus, string editing, and source code for drag and rubber box operations.

MODES AGAIN. If a program is modeless, it acts predictably, which turns out to be very important. On the other hand, a good definition for "modes" is hard to find. In column eight, I suggested that a mode exists when you cannot use all of the capabilities of the program without performing some intermediate step. If this is less than clear, here are two alternate definitions offering different views of the problem.

THE "TWO USER TEST". Consider the following thought experiment: Imagine that your ST (and GEM) had two mice, two cursors, and two users. Could they both effectively use the program at the same time? If so, the application is modeless. If there are points where one user can be "locked out" by the actions of the other, then a mode exists at that point. Let's consider some examples of this test.

In any program which uses the GEM menu system, one user could stop the other by touching a menu hotspot and dropping a menu. This constitutes an inherent mode in the GEM architecture.

On the GEM Desktop, two users could open windows and view files without interference. However, as soon as one person tries to delete a file (assuming the verify option is on), the other is brought to a halt as a dialog appears. Thus, we have found a modal dialog.

In many "Paint-type" programs, such as MacPaint, PC Paint, and GEM Paint, two artists could co-exist quite well, utilizing the on-screen palette and tool selection. Of course, these programs also contain modal dialogs for such operations as file and brush shape selection. In contrast, consider the paint program DEGAS for the ST. Here, two artists could only work together as long as neither wanted to change tool or color. Then the display would have to be flipped to the selection screen, stopping the other user. This is a mode in the DEGAS interface.

(By the way, this test is not just academic. The grand-daddy of all mouse based systems, NLS, demonstrated by Doug Englebart in 1968, had two mice and two users, one of whom was physically remote. Cooperative techniques such as this are still largely unexplored and unexploited.)

ONE LINER. Here's a terse definition by Jef Raskin: A

program is modeless if a given action has one and only one result. Again, let's run a few examples.

The menu dropdowns are clearly modal by this definition. Before the menu was activated, window control points could be activated with a click. However, when the dropdown is visible, a click action is interpreted as a menu selection or a dismissal of the dropdown. Similarly, dialogs are modal because the action of moving the mouse into the menu bar no longer causes the dropdown to appear.

I am typing this using the First Word editor program. It has a nice desktop level box full of characters where I can click to get symbols which the ST keyboard won't produce. However, if I invoke the find or replace string dialog, the click-in-the-box action doesn't work anymore. This is a mode in the First Word interface.

Finally, consider an "old style" menu program, the kind where you type in the number of the desired action from a list. Since the number "2" might mean "Insert the record" in one menu, and "Purge the file" in another, such a program is clearly modal by Raskin's definition.

These three definitions say almost the same thing, but from different viewpoints. Depending on the situation, one or the other may be more intuitive for you. The goal of this type of analysis is to root out unnecessary modes, and to make sure that those which remain only appear when requested by the user, offer some visual cue such as a rubber line or standard dialog box, and are used consistently throughout the application.

PREDICTABILITY FOREVER AND EVER AND EVER. As Raskin's definition makes clear, when the modes go away, the interface becomes predictable. Predictability leads to the formation of habits of use. Habits reduce "think time" and become progressively faster due to the Power Law of Practice discussed in column eight. This is exactly what we want!

There is another benefit of predictability. A habit learned in one part of a program with a consistent interface can be transferred and used elsewhere in the application. If several programs share the same style of interface, the same habits can be used across a complete set of products. Learning time for the new functions becomes shorter, and the user is more likely to use the new feature.

IS A BOGEYMAN! Most casual users are scared silly of computers and programs. (If you have any doubt, eavesdrop on a secretary with a new word processor, or the doctor's receptionist coping with an insurance data entry program.) In most cases, they have a right to be frightened. Even experienced programmers, prone to toss the manuals and hack away, know that moderate paranoia is the best way to deal with an unknown program. How must this feel to someone whose ability to perform (or lose) their job depends on an unpredictable (aha!) black box.

So here's another way in which predictability works. But to produce a truly fearless user, we need other qualities as well. One is robustness, meaning that the program will not crash given

normal or even bizarre actions by the user. Another is feedback, which shuts off invalid options, reinforces correct actions, and gives reassurance that an operation is proceeding normally. Finally, we need forgiveness, in the form of inverse operations or Undo options, when the inevitable mistake is made.

The ultimate goal is make the program discoverable. This means the user should be able to safely "wing it" after a short session with the application and its interface. This practice ought to be considered the norm anyway, since the manual is always across the office or missing when an esoteric and half-forgotten feature is needed. If it is possible to muddle through such a situation by trial and error, without causing damage, the immediate problem will be solved, and the user will gain confidence.

GOOD GRAMMAR OR... So exactly what are these habits that are supposed to be so helpful? One of the most useful patterns is a consistent command grammar for the program. This may sound strange, since we have supposedly abandoned command line interfaces in the graphics world, but in fact, the same type of rules apply. For instance, in the world of A> we might issue the command:

```
copy a:foobar.txt b:
```

By analogy to English grammar, this command contains a verb, "copy", a file as subject: "a:foobar.txt", and a location as an object: "b:". The equivalent GEM Desktop operation is:

- Move mouse to foobar.txt icon in a: window
- Press mouse button
- Move mouse to b: icon
- Release mouse button

The operation can be described as a select-drag-drop sequence, with the select designating the subject file, the drag denoting the operation (copy), and the location of the drop showing the object. A grammar still exists, but its "terminal symbols" are composed of mouse actions interpreted in the context of the current screen display, rather than typed characters.

One useful way to analyze simple grammars, including those used as command languages, is to separate them into prefix, postfix, and infix forms. In a prefix grammar, the operation to be performed precedes its operands, that is, its subject(s) and object(s). The DOS copy command given above is an example of a prefix command. LISP is an example of a language which uses prefix specification for its commands.

Postfix grammars specify the action after all of the operands have been given. This command pattern is familiar to many as the way in which Hewlett-Packard calculators work. FORTH is an example of a language which uses a postfix grammar.

Infix notation places the verb, or operator, between its subject and object. Conventional algebraic notation is infix, as are most computer languages such as C or PASCAL. The example GEM command given above is also infix, since the selection of a subject file preceded the action, which was followed by the

designation of an object.

The "standard" GEM command grammar, as used in the products produced by Digital Research, is in fact infix. This is not to say that GEM enforces such a convention, or that it is rigorously followed. However, when there is no pressing reason for a change, adoption of an infix command grammar will make your application feel most like others which users may have seen.

The general problem of specifying a graphic command language can be difficult, but much of the problem has already been handled on the ST. Part of the solution is by constraint: the input and output hardware of the ST are predefined, so most developers will not need to worry about choosing a pointing device or screen resolution. The other part of the standard solution is the GEM convention for mouse usage. I am going to review these rules, and then describe of the situations in which they have been bent, and finally some alternate approaches which may prove useful to some developers.

SPECIFYING A SUBJECT. There are really two sets of methods for designating what is to be affected by an operation. One set is used when distinct objects are to be affected. Examples are file and disk icons in the Desktop and trees in the RCS. Another set of designation methods is used when continuous material, such as text or bit images, is being handled.

When dealing with objects, a single mouse click (down and up) over the object selects it. The application should show that the selection has occurred by changing the appearance of the object. The most common methods are inverting the object, or drawing "handles" around it.

Many operations allow "plural", or multiple object, selections. The GEM convention is that a click on an object while the shift key is held down extends the selection by adding that object. If the shift-clicked object was already selected, it is deleted from the selection list.

Another way to select multiple objects is to use a "rubber box" to enclose them. This operation begins with drag on a part of the view where no object is present. The application then animates a rubber box on the screen as long as the mouse button is held down. When the button is released, all objects within the current extent of the box are selected. A shift-drag combination could be used to add the objects to an existing selection list.

Selecting part of a text or bit plane display is also done with a rubber box. Since there are no "objects" in the view, any mouse drag is interpreted as the beginning of a selection operation. In the simplest case, a bit plane, the rectangle within the box when the button is released is the selected extent.

When the underlying data has structure, such as words and lines of text, the display should reflect this fact during the selection operation. Typically, text selection is indicated by inversion of the characters rather than a rubber box. The selection extends along the starting line so long as the mouse stays within the line. If the mouse move off the starting text line, the implied selection is all characters between the starting

character and the character currently under the mouse, which is not necessarily a rectangular area.

An extended "plural" selection may be supported in text editing. The use of the shift key is also conventional in this application.

ACTION. With the subject designated, the user can now choose an operation. In many cases, this will be picked from the menu, in which case the entire command is complete. Some menu selections will lead to dialogs, in which the interaction methods are regulated by the GEM form manager. When the command is completed, it is often helpful if the application leaves the objects (or areas) selected and ready for another operation. A single click away from any object is interpreted as cancelling the selections.

Many operations are indicated by gestures on the screen. Usually, this is some variant of a drag operation. The interpretation of the gesture may depend on the type and location of the selected subject, which part of it is under the mouse, and in what location the drag terminates.

"Handles" are small boxes or dot displayed around an object when it is selected. A drag beginning with the mouse on a handle is usually interpreted as a resizing operation, if this is appropriate. The pointing finger mouse form is displayed to indicate the operation in progress, and a rubber version of the object is animated on the screen to show the user the result if the button were released. In some cases, where an underlying "snap" grid exists, the animated object may change size in discrete steps.

Dragging a non-handle area of a selected object is usually interpreted as the beginning of a move function. In most applications, a move of a single object may be started without pre-selection. Simply beginning the drag on the object is taken to imply selection. The spread hand, or "grabber", mouse form is typically displayed during a drag operation.

Dragging may denote copying or movement, or more complex functions such as instantiation or generalization. The operation implied by movement on the screen will differ among applications, and often within the same application, depending on target location. This target is the recipient of the command's action, or its object, in an English grammar sense.

For example, a drag from window to window in the Desktop denotes a copy. On the other hand, dragging the same icon to the trashcan deletes it completely. Dragging an object from the RCS partbox to the editing view creates a new copy of that prototype object. Dragging the same object within the edit view simply changes its placement.

There are some mouse actions which are conventional "abbreviations". A double click on an object is interpreted as both a selection and an action. Usually, the double click action is the same as the Open entry in the "File" menu.

When the usual interpretation of a drag is movement, then

shift-drag may be used as an enhanced variant implying copying. For instance, shift-dragging an object within the RCS editing window makes a copy of the object and places it in the final location.

To return to the beginning of this discussion, the reason for adopting these conventional usages is to build an interface that promotes habits. Particularly, a standard grammar for giving commands helps answer the question "What comes next?". It breaks the user's actions into logical phrases, or chunks, which may be thought of a whole, rather than one action at a time.

DIFFERENT FOLKS, DIFFERENT STROKES. There are always exceptions to a rule, or so it seems. In this case, consistency of the interface grammar is sometimes traded off against consistency of metaphor, preservation of screen space, and "fast path" methods for experts.

One example is the use of "tools" in Paint and Draw programs. In such programs, an initial click is made on a tool icon, denoting the operation to be applied to all following selections. This is an prefix style of grammar, and stands in contrast to the usual method of selecting subject object(s) first. Because of this contrast, it is sometimes called "moding the cursor". (Try applying the tests above to be sure it really is a mode.)

In these cases, there are two reasons for accepting the nonstandard method. The first is consistency of metaphor. The "user model" portrayed in the programs is an artist's work table, with tools, palette, and so on. The cursor moding action is equivalent to picking up a working tool. The second reason is speed. In a Paint program, the "canvas" is often modified, and speed in creating or changing the bits is important. In more object oriented applications such as Desktop or RCS, the objects are more persistent. Speed is then more essential when adding or changing properties of the objects.

When command styles are mixed in this fashion, you must design very carefully to avoid conflicts or apparent side-effects in the command language. For example, in GEM Draw picking an action from the Edit menu cancels the current cursor mode without warning. Confusion from such side-effects may cancel out the benefits of the mixed grammar.

The subject of command speed deserves further attention. While the novice approaching a program needs full feedback, a person who uses it day in and day out will learn the program, and want faster ways to get the job done, even if they are more arcane. This gives rise to a "layered" style of interface.

A layered interface is designed so that the visual grammar is obvious, as we have discussed. However, there are one or more sets of "accelerators" built into the program, which may be harder to find but faster to use. One example is condensed mouse actions such as the double-click. For instance, attempting to select a block of text which extends beyond a window is impossible using the basic metaphor. The novice will simply do the operation in pieces. A layered interface might put a less obvious Mark Begin and Mark End option in the menus. Another way is to take a drag which extends outside the window as a request to begin scrolling

in that direction, while extending the current selection.

One of the most common and useful accelerator methods is function keys. Using this approach, single key equivalents to actions are listed in the menu. Striking this key when an object is selected will cause the action to occur. Note that this is most useful if some keyboard driven method of object selection, such as tabbing, is also available. Otherwise, the time switching from the mouse, used to select the object, to the keyboard for command input, may well cancel any advantage.

Finally, radical departures from the GEM metaphor may be useful when attempting to replicate the look of another system, or trying to meet severe constraints, such as display space. One example would be discarding the standard GEM menus in favor of "popup" menus which appear next to the current mouse position in response to a click on the second button. This method has the advantage of preserving the menu space at the top of the screen, and is potentially faster because the menu appears right next to the current mouse position. The drawbacks are lack of a visual cue for naive users trying to find the commands, and the need for custom coding to build the popups.

MORE TO COME. We have reached the end of the second sermon on user interface. In a future column, I will look at "higher level" topics relating to the design of the application's user metaphor. These include issues of object orientation, direct manipulation, and the construction of microworlds. In the meantime, several of the more practical columns will present implementations of techniques such as accelerator keys and popup menus which I have discussed this time.

THANKS AND APOLOGIES to the following people whose public and published remarks have formed part of the basis of this discussion: Jef Raskin, Bill Buxton, Adele Goldberg, James Foley, and Ben Schneidermann. As always, any errors are my own.

Release Notes for REVOLVER Version 1.1

11/23/88

Questions and Answers:

:TIME:

The ST has a software clock and a hardware clock. The hardware clock is not changed during switching or rolling in programs but the software clock will lose accuracy during switching and when rolling in programs. If you prefer to have the clock reflect accurate time you should add REVTIME.PRG to your AUTO folder. This program will cause all accesses to the ST's clock to be made from the hardware.

NOTE: The Set Time & Date function in REVOLVER set the hardware clock.

:PARTITION COPY:

Partition copy is a new feature that copies the contents of one partition to another one. To use it click "COPY" on the main menu, then select the target partition. An example of a good use for this feature would be if you have partitions that are the same size, you only need to boot one of them, and copy the others, making startup faster.

:SYSTEM CRASH MESSAGE:

Revolver 1.0 intercepted system crashes 2 and 3 by displaying a message in the upper left hand corner of the screen. This display has been removed in Version 1.1 so that a system crash is handled by the operating system in the normal manner.

:FLOPPY DRIVE MEDIA CHANGE:

Revolver 1.0 could be fooled into not making a media change when switching between single and double sided floppy disks. Version 1.1 forces a media change to occur whenever a partition is switched to, thus fixing the problem.

:FORTY FOLDER FIX:

Version 1.1 will not activate the Forty Folder Fix when used with the Version 1.4 Operating System (since this problem is solved in 1.4).

:PYROTECHNICS:

Version 1.1 allows the user to turn off REVOLVER's sounds and visual slide in effect (selectable in the Configuration Menu).

:FOLDER RENAME:

A folder rename has been added the the Disk Commands Menu.

:FILE SELECTOR:

The file selector will now show folders when using a wild card pattern for the file name.

:EXIT USING RETURN KEY:

REVOLVER dialogues may now be exited using either the left mouse click on the EXIT button or by pressing the Return Key.

:MOUSE ACCELERATOR:

The Mouse Accelerator in version 1.0 conflicted with Word perfect and several other programs that used their own mouse drivers. This has been fixed in version 1.1 thus allowing the use of such programs with REVOLVER. However if problems occur simply de-install the mouse driver and reboot without it.

:PARTITION SIZE ALLOCATION:

The partition allocation block size has been decreased from 256K to 128K thus allowing for a greater combination of partition sizes. This is of particular benefit to 1040 users. Additionally, the allocation of REVOLVER's overhead across partitions can be handled in two ways... EVEN allocation will allocate the overhead equally across all partitions (this was the way Version 1.0 did it), PERCENTAGE will allocate the overhead based on the percentage of memory in each partition. PERCENTAGE is recommended if you wish to allocate a minimum size partition (1 block).

:PARTITIONS TOO SMALL FOR GEM:

Version 1.1 will force partitions with less than 160K of memory to become TOS only partitions. You may run only small TOS applications in such a partition but REVOLVER will be accessible through them. This will allow you to use REVOLVER with minimal overhead should you desire not to use the GEM switching functions.

:MOUSE COLOR CHANGE:

The mouse color has been changed so that it is easier to see on monochrome systems.

:RIGHT MOUSE DOUBLE CLICK:

The mouse driver has an added feature selectable in the Mouse Configuration Dialogue that allows you to use the Right Mouse Button to simulate a Left Mouse Double Click.

:BOOT MANAGER:

A boot manager has been added and can be turned on in the Configure Dialogue. It allows you to select auto programs and desk accessories as each partition is booted. Simply select ACC or AUTO on the lower left of the dialogue then use the mouse to move your selections to the USE column (if you want them) or the POOL column (if you wish to boot without them). Pressing Return or clicking on Desktop will allow the boot process to continue normally, clicking on the CLI will cause the booting partition to boot only to TOS.

:CALLING UP REVOLVER:

Normally REVOLVER can easily be called up using the ALT-LEFT SHIFT key combination and switching to the next partition can be quickly accomplished by pressing the CONTROL-ALT-LEFT SHIFT combination. Some programs will not respond to these combinations unless you depress

another key (such as the space bar) while waiting for REVOLVER to acknowledge (the screen flash). Some example programs that demonstrate this are DCOPY, DBMAN and GULAM.

:PROBLEM PROGRAM TYPES:

Most programs that do not successfully work with REVOLVER are those that place the keyboard into Joystick Monitor and/or Fire Button Monitor mode. This includes many games. You can often successfully rollout then rollin such games from their title screen or menu screens. Rolling them out from the action screen will cause them to be fully restored when rolled back in except that the Joystick Fire Button will not work.

Programs that boot directly from the master disk will not allow REVOLVER to load (since REVOLVER is not on the master disk). This category is also usually games.

Programs that make changes to the architecture of the operating system (such as PCBITTO and MAGIC SAC) will remove REVOLVER and all of its Partitions and should be run without REVOLVER loaded (Hold down the ALT-LEFT SHIFT while booting to boot without REVOLVER).

:REVOLVER ROUTINES:

REVOLVER has several functions that can be called through the trap 13 handler. They were designed to aid in integration of REVOLVER with standard applications. See REVBIND.C for examples.

To upgrade send in your original disk and \$6.25.

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San Francisco CA

Alan Page, author of Flash, has announced he is now privately employed. However, Page vows complete support for Flash will continue.

Houston, TX

Atari customer crys FOUL! Seems a dealer here has offered to "help" him obtain a new sc1224 under Atari's exchange program for a nominal fee..... 165.00 +tax!!!! Another ripoff artist is found out.

Sunnyvale, CA -----	"Leaks" at the top say, WHY? As soon as the DRAM situation eases, we now are looking at hardware headaches. Wanna bet there is "retirement in the cards" for a few at the TOP???
Allentown, PA -----	Commodore is expected to "own" the US home computer market by the end of 1989, the sales of it's slow starter, The Amiga, have soared in the last 6 mos.
Williamsport, PA -----	Amiga 2000 and Commodore PC Compatibles are sold through MAIL ORDER. Adhereing to sound marketing techniques, Commodore allows it's computer lines to flow through mail order to maximize market penetration. (The more machines - the more developers)
NYC, NY -----	The general opinion among seasoned marketing analysts is; "the showing by Atari at COMDEX was just short of being a joke" one remark often heard was, "What the he** are they trying to do? Blow another Xmas Sales Season? "THEY HAD NOTHING NEW TO SHOW OR SHIP".... "JUST MORE PROMISES"!
Columbus, OH -----	CompuServe, has announced a fax connection and that it's users of Easy-Plex and Info-Plex can now send messages to FAX machines worldwide.

THIS WEEK'S QUOTABLE QUOTE
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Atari's "Rule of Thumb"

"No matter how large or varied the market place is,
Atari will find a way to redefine or fault it."

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